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MICHAEL S. WOODS, M.D.
Wichita, Kansas

August 19, 1993

Dear Editor:

We appreciate Dr. Woods' thoughtful and supportive discussion of our article. Although we did not make a categorical recommendation for routine preoperative angiography, that sentiment was implicit in our conclusion that in such patients "preoperative visceral angiography is of inestimable value." Moreover, we suggested that "a lateral projection of the celiac axis (and superior mesenteric artery) should be an integral part of that study . . ." ¹ The review of preoperative angiography for patients undergoing Whipple procedures cited by Dr. Woods provides additional evidence supporting these conclusions.

Dr. Woods delineates two specific examples, gastric ischemia and failure of the hepaticojejunostomy, amplifying our general concern that uncorrected celiac artery insufficiency after pancreaticoduodenectomy, would "likely [result] in serious morbidity and mortality." ¹ We are, however, less sanguine than he that hepatic ischemia is of little concern. Ordinarily, hepatic artery ligation is well tolerated by virtue of the rapid and extensive arterial collateralization that ensues. However, when celiac stenosis complicates pancreaticoduodenectomy, alternative routes for arterial ingress for hepatic collateralization may be impaired by arterial disease or further disrupted at operation, e.g., by splenic artery ligation. Hence, we are reluctant to assume that hepatic ischemia, particularly of the magnitude observed in our two cases, would be without consequence if not relieved.

Reference

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DAVID A. BULL, M.D.,
GLENN C. HUNTER, M.D.,
THOMAS G. CRABTREE, M.D.,
VICTOR M. BERNHARD, M.D.,
CHARLES W. PUTNAM, M.D.
Tucson, Arizona

Dear Editor:

We were interested to read the article, "Laparoscopic ileostomy and colostomy," by Lyerly and Mault. ¹ The laparoscopic technique for creating stomas is not difficult and reduces morbidity and discomfort when compared with open laparotomy. We previously have reported on our technique of laparoscopic loop ileostomy. ² We find it unnecessary to mature the stoma site before placing the trocar as described by Lyerly and Maul. ¹ If the stoma is first matured down to the peritoneum, there is a risk of losing the pneumoperitoneum or dislodging the cannula while looking for the section of bowel to be matured. We place the cannula through the stoma site and grasp the distal ileum with a Babcock. A circle of skin around the cannula is excised, and the cannula is withdrawn, leaving the Babcock and bowel in place, while the fascia is incised to allow two fingers to pass. Then the Babcock with the ileum is brought out through this opening, and the pneumoperitoneum is re-established. The bowel then is matured to the skin. Aside from this minor difference in technique, we agree with the authors that the laparoscopic technique of stoma creation is not difficult and is associated with minimal morbidity.

References

1. Lyerly HK, Mault JR. Laparoscopic ileostomy and colostomy. *Ann Surg* 1994; 219:317-322.
2. Khoo REH, Montrey J, Cohen MM. Laparoscopic loop ileostomy for temporary fecal diversion. *Dis Colon Rectum* 1993; 36:966-968.

ROBERT E. H. KHOO, M.D.
MAX M. COHEN, M.D.
Denver, Colorado

June 1, 1994

Dear Editor:

We appreciate the nice comments from Drs. Khoo and Cohen regarding our article, "Laparoscopic Ileostomy and Colostomy." ¹ They have also published a fine article regarding the use of a laparoscope to create a loop ileostomy for temporary fecal diversion. ² We agree on the usefulness of the technique, but have found that for certain indications, especially in the oncologic patient, some foresight in the creation of the stoma is required.

Clearly, in patients with ascites, preparing the stoma site before releasing the pneumoperitoneum prevents large amounts of ascitic fluid from exiting from the peritoneal cavity. This may represent the situation in those patients with benign or malignant ascites; however, because it works so well in this situation, we find it applicable to many patients. We have no difficulty in maintaining the pneumoperitoneum by not dividing the peritoneum until necessary.

Another indication in which foresight in the creation of the stoma is useful is when we completely divide the intestine to create an end colostomy and a mucous fistula. In these circumstances, having the stomas prepared minimizes the loss of pneumoperitoneum. During a loop ileostomy, the intestine

quickly occludes the abdominal cavity stoma site, minimizing this loss. Finally, in those patients who have large amounts of subcutaneous fat, we find that it is extremely useful to have some foresight in preparing the stoma.

References

1. Lyerly HK, Mault JR. Laparoscopic ileostomy and colostomy. *Ann Surg* 1994; 219:317-322.
2. Khoo REH, Montrey J, Cohen MM. Laparoscopic loop ileostomy for temporary fecal diversion. *Dis Colon Rectum* 1993; 36:966-968.

H. KIM LYERLY, M.D.
JAMES MAULT, M.D.
Durham, North Carolina

Dear Editor:

We read with great interest the article, "The Incidence, Timing, and Management of Biliary Tract Complications After Orthotopic Liver Transplantation," by Greif et al.¹ Dr. Starzl and his associates are to be congratulated on their pioneering and consistent excellence in the field of liver transplantation. It is indeed disheartening that the rate of biliary strictures and anastomotic leakage is responsible for considerable morbidity, and we agree that extra effort is needed to improve the technical aspects of the reconstruction.

We would like to suggest a slight modification in the reconstruction, which may reduce the incidence of complications. The most common complications described are anastomotic strictures, leakage of bile from the anastomosis and the T-tube site, ampullary dysfunction, and biliary obstruction.

Considering that all cases of ampullary dysfunction were treated successfully by conversion to a Roux-en-Y choledochojejunostomy, we believe that all the reconstructions should be Roux-en-Y choledochojejunostomies. This form of reconstruction also is the basis of our suggestion, which, with a simple modification should make dealing with the complications relatively easier.

The Roux-en-Y choledochojejunostomy is carried out at least 10 to 15 cm distal to the closed end of the Roux loop, which is to be placed subcutaneously in the epigastrium using a separate 2.5-cm incision. The important step is to bring out this loop and retain it in the subcutaneous tissue by anchoring it to the linea alba with a few sutures (Fig. 1A). If a T tube is considered necessary, it should be brought out through this loop, using a separate stab incision, and the skin over the exteriorized loop is closed. No metal clips are used to identify this site, and it is obvious by the small scar. (Fig. 1B)

The advantages of this procedure begin with the solution of the T-tube problems. Because it is brought to the skin through the jejunum and not the peritoneal cavity, it need not be retained for lengthy periods, because a tract is not necessary. This will prevent leakage of bile into the peritoneal cavity once the tube is removed.

Cholangiography is possible even after the T tube is removed by simple puncture of the subcutaneous loop without sedation or local anesthesia. If an anastomotic leak is discovered, it can

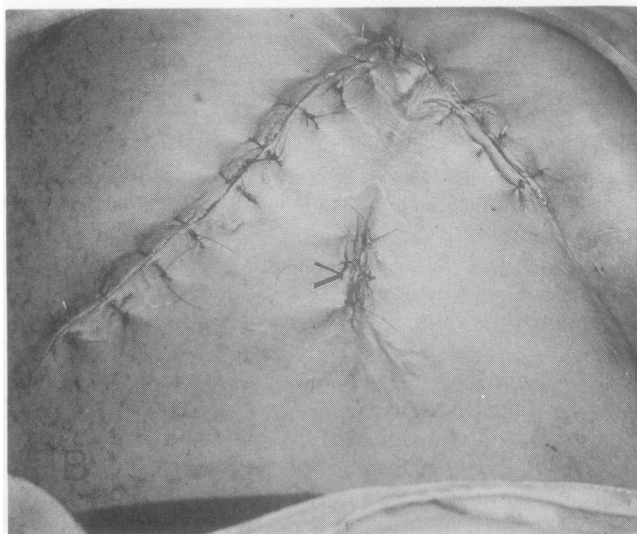
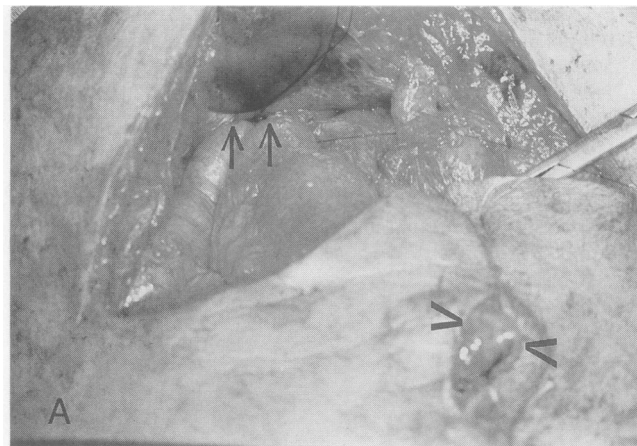


Figure 1. (A) Perioperative photograph showing the closed end of the Roux-en-Y loop brought up subcutaneously through the linea alba (arrowheads). The hepaticojejunostomy also is seen (arrows). (B) Photograph after closure of the abdomen. The location of the access loop is indicated by the small vertical scar (arrowhead).

be treated by inserting a stent through the same loop without re-operation. If obstruction by stones, sludge, or casts is documented on cholangiography, clearance is possible with baskets and other steerable catheters. These manipulations can be carried out either percutaneously or by opening the loop and using the choledochoscope, under local anesthesia. An anastomotic stricture can be dilated using balloon dilators under fluoroscopy, repeatedly if necessary.

The rationale of this procedure is to provide a permanent means of simple access to the anastomosis and the entire biliary tree after a Roux-en-Y choledochojejunostomy. Cholangiography or choledochoscopy provides the diagnosis and the same access is used for treatment without surgery. This access is not associated with major procedure-related complications, such as hemobilia and septicemia, because it avoids the liver parenchyma, does not require mature tracts, and is free of indwelling catheters and devices.